

Aspergillus rugulosa. The highest similarity (100%) was observed between *Aspergillus flavus* with *Aspergillus oryzae* and *Aspergillus nidulans* with *Aspergillus rugulosa*. The least genetic similarity was found between *Aspergillus flavus* with *Aspergillus rugulosa* and *Aspergillus oryzae* with *Aspergillus rugulosa*. The phylogenetic tree revealed that two clade were formed among the fungal species with one clade belongs to *Aspergillus flavus*, *Aspergillus rugulosa* and *Aspergillus sydowii* and the another with *Aspergillus flavus* and *Aspergillus oryzae*. The present study shows the presence of different pathogenic fungal species which can be from different sources of contamination at various stages of dry fish processing.

SF OR 13

Prevalence of *Salmonella* in seafood collected from the local markets

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S*almonella* is a serious food-borne pathogen which belongs to enterobacteriaceae family. All *Salmonella* groups other than *Salmonella typhi* and *S. paratyphi* refers to as NTS (Non-Typhiodal *Salmonella*) which causes diseases from mild gastroenteritis to life threatening cases and it is becoming a great public concern worldwide recently. Nearly 165 sea food samples from local markets of Cochin were screened for the *Salmonella* and it is found that the prevalence is 27.3%. The 45 positive samples include many commercially important fishes, shellfishes and molluscs. All isolates were confirmed as positive by bio

typing and by PCR targeting *invA* gene with 284bp. Serotyping of these isolates confirmed the presence of various Non Typhiodal *Salmonella* (NTS) strains like *Salmonella typhimurium*, *S. salamae*, *S. urbana*, etc. Some of the isolates were rough type which cannot be serotyped. Antibiogram profiling was performed against twenty antibiotics like imepenem, ciprofloxacin, tobramycin, moxifloxacin, ofloxacin, ceftazidime, levofloxacin, norfloxacin, cotrimoxazole, colistin, nalidixic acid, augmentin, ceftoxitin, gatifloxacin, gentamycin, amikacin, aztreonam, ceftriazone, cefpodoxime, nitrofurantoin etc. The *Salmonella* isolates showed the resistance towards third generation cephalosporins, carbapenem and nitrofurantoin groups.

SF OR 14

Fluoride removal from water using chitosan coated activated carbon and cuttle bone carbon in combination with alumina

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Fluoride contamination of ground water is a globally important concern both in health and environmental aspect. High content of fluoride in drinking water can result in many health issues including skeletal and dental fluorosis. As there is a serious requirement for defluoridation of drinking water, activated carbon and Cuttle bone carbon was modified with chitosan (chitosan coated activated carbon – CCAC and chitosan coated Cuttle bone carbon - CCBC) and used in combination with alumina for defluoridation. Characteristics of CCAC and CCBC were studied using SEM

images and FT-IR spectra. A batch adsorption study was carried out at different adsorbent dosage, contact time and initial concentration. Fluoride concentration was determined using Ion chromatography. Maximum fluoride removal efficiency of 85.37% from water was obtained using a combination of 2.5% chitosan coated activated carbon and 1% alumina. While a maximum fluoride removal efficiency of 66.88% was obtained using a combination of 2.5% chitosan coated cuttle bone carbon and 1% alumina. Both the combinations effected optimal fluoride removal efficiency of 94.58 and 75.63 % respectively at a contact time of 120 minutes. Combination of CCBC and alumina was found to be more effective with higher fluoride removal efficiency at higher initial concentration of fluoride when compared to combination of CCAC and alumina.

SF OR 15

Effect of organic acid on survival of *Staphylococcus aureus* and enterotoxin production in fish during drying

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This study was aimed to investigate the effect of organic acid against *S.aureus* and enterotoxin production in fish during drying. Shark (*Carcharhinus falciformis*) procured from the local fish market was deskinning, cut into small pieces and then decontaminated with 5ppm chlorine. Shark meat pieces were inoculated with three different levels of *S.aureus*: a low level of 3log cfu/g, a medium level of 5log cfu/g and a high level of 7log cfu/g. The meat was then

washed with four different concentrations (1, 3, 5 and 7%) of propionic acids separately and dried in an electric drier for 24hr. Moisture and water activity of fresh meat was 75.9% and 0.98, which decreased to 10.6% and 0.63 during drying. In 3log cfu/g inoculated samples there was about 1.52, 2.63, 2.73 and 3.31 log reduction in *S.aureus* for 1, 3, 5 and 7% treated samples at the end of drying. Enterotoxin was not detected in any of the samples including the control samples after drying. In 5logcfu/g inoculated samples, there was remarkable reduction in the *S. aureus* count for 5% and 7% treated samples (3.3 and 4.38 log cfu/g) compared with other treated samples. Enterotoxin was not detected in 5 and 7% treated samples. In 7log cfu/g inoculated samples there was about 0.67, 1.89, 4.16 and 4.43 log reduction in *S. aureus* count for 1, 3, 5 and 7% treated samples at the end of drying. Enterotoxin was detected in all the treated samples except in 7% propionic acid. Therefore 7% was found effective for samples contaminated with 7 log cfu/g. It was concluded that propionic acid was highly effective in decontaminating meat surfaces and are shown to be safe, simple, efficient, and cheap which can be highly recommended for commercial applications for decontaminating of fish during drying.

SF OR 16

Progression of microbes associated with quality and safety of chill stored *Caranx melampygus*

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Fish, which is a good source of low calorie, high protein food with a range of health